

HERITAGE STATEMENT: Meopham Windmill

Meopham Windmill, Wrotham Road, Meopham Green, Kent, DA13 0QA
Gravesham Borough

List entry

NGR: TQ 63947 65183

List entry no: 1054722

Grade: II*

Date first listed: 22nd August 1952

List description

TQ 66 NW 4/100

MEOPHAM WROTHAM ROAD (west side) Meopham Windmill 22.8.52 II* 1801 built by the brothers Killick. Smock mill. Lower two storeys red brick, upper three storeys weatherboarded. Four sweeps. Recently restored. Machinery complete and in working order.

Listing NGR: TQ6394765183

1. Historic context

At their peak in the late 18th and early 19th centuries, there were many thousands of timber-framed windmills at work throughout England.

Meopham Windmill is one of a small number of surviving examples of traditional windmill that were once numerous in Kent. The two main types of timber-framed windmills to be found in Kent are post mills and smock mills.

Just over 20% of the UK's surviving post and smock mills stand within the borders of Kent (although one former Kentish post mill at Keston has recently been lost through boundary changes).

The smock mill - of which Meopham Mill is an example - was the more favoured type within the county and superseded the earlier and more primitive design of post mill. Very few brick-built tower mills, which became popular in other areas, were ever erected in the county.

William Coles Finch's survey of Kent windmills, published in 1933, includes contemporary photographs of 118 smock mills and documentary references to many others.

Of the 55 UK smock mills that survive in a complete or partly dismantled state, 17 of them stand within the borders of Kent (Table 1).

Table 1: Surviving post and smock mills in Kent

Mill type	Location/Name	District	Listing	Ownership	Present condition
Post	Chillenden Mill	Dover	II*	Kent CC	Preserved complete.
Post	<i>Keston Mill</i>	<i>Bromley</i>	<i>II</i>	<i>Private</i>	<i>Preserved complete. Now located in the London Borough of Bromley.</i>
Post	Rolvenden Mill	Ashford	II	Private	Preserved complete.
Post	Wittersham, Stocks Mill	Ashford	II	Kent CC	Preserved complete.
Smock	Ashford, Willesborough Mill	Ashford	II	Ashford BC	Preserved in working order.
Smock	Benenden, Beacon Mill	Tunbridge Wells	II	Private	Converted to holiday accommodation.
Smock	Charing, Field Mill	Ashford	II	Private	Converted to a house.
Smock	Cranbrook, Union Mill	Tunbridge Wells	I	Kent CC	Preserved in working order.
Smock	Eastry, Upper Mill	Dover	II	Private	Converted to a house.
Smock	Herne Mill	Canterbury	I	Kent CC	Preserved complete.
Smock	Margate, Drapers Mill	Thanet	II	Kent CC	Preserved in working order.
Smock	Meopham Mill	Gravesham	II*	Kent CC	Preserved complete.
Smock	Northbourne, New Mill	Dover	II	Private	Converted to a house.
Smock	Ripple Mill	Dover	II	Private.	Preserved complete.
Smock	St Margaret's Bay Mill	Dover	II	Private.	Preserved complete.
Smock	Sandwich, White Mill	Dover	II	Sandwich BC	Preserved complete.
Smock	Sarre Mill	Thanet	II	Private.	Derelict but complete.
Smock	Stelling Minnis, Davison's Mill	Folkestone & Hythe	I	Kent CC	Preserved complete.
Smock	West Kingsdown Mill	Sevenoaks	II	Kent CC	Preserved complete.
Smock	Whitstable, Borstal Hill Mill	Canterbury	II	Private.	Preserved complete.
Smock	Woodchurch, Lower Mill	Ashford	II*	Ashford BC	Preserved complete.

2. The significance of Meopham Mill

Meopham Mill is one of six smock mills in the care of Kent County Council. These windmills are exceptional in terms of their very high listing grades, their historic and regional significance, their architectural and technological excellence and their mechanical completeness.

Although Kent's smock mills conformed broadly to a common and recognisable form, the details of their design varied subtly across the county. The late Vincent Pargeter, a well-known 20th century millwright and consultant, described Meopham Mill as *"the only remaining example of a Medway-type mill, and... therefore very important."*

Structural significance

Overall, the mill is comparatively small and slender, with diameter at the curb of only 2.8m. A more typical size is 3.5m diameter, as at Herne Mill.

Unlike the majority of smock mills constructed in the UK, Meopham Mill is unusual in being hexagonal, rather than octagonal, in plan. Other hexagonal smock mills in the local area include the mill at Broom Hill, Strood, and Lower Stoke Mill. The last named stood on a tall brick base and was very similar to Meopham mill in appearance. It is possible that all three mills were versions of the same original design.

A handful of six-sided English smock mills survive intact, and the majority of these have an association with water pumping rather than corn milling. A slender hexagonal tower is lighter and therefore more ideally suited to water pumping than a large octagonal one, as only limited space inside the mill is required to house the necessary machinery.

At Meopham Mill, the available space on the 3rd or millstone floor is extremely tight. Only two pairs of millstones can be accommodated here, whereas larger mills could be fitted with three or even four pairs on one floor. The pattern of the floor beams in a hexagonal smock mill does not readily lend itself to the function of corn milling. Meopham Mill's main beams span across the centre of the floor in several instances, making the associated floor framing more unorthodox.

Mechanical significance

Pargeter identifies several unusual mechanical features of the windmill, some of which cannot now be found at any other example. These include:

- A fan stage of 'Medway' pattern. The arrangement of timbers that supports the fantail could formerly be seen at other smock mills in the area that no longer exist. These include those located in and around Rochester and on the Hoo Peninsula.
- Details of the sweeps, including the arrangement of the spider cross at the centre and the provision of additional shutters outboard of the last bar at the tip of each sweep. The design of the spider cross meant that one pair of sling irons pointed forwards while the other pair pointed backwards, allowing all four slings to be made to the same length.
- Rare interior details. These include individual cast-iron cogs to the great spur wheel; most examples either have individual wooden cogs or bolted-on sections of segmental iron teeth. The 'underdrift' arrangement of millstones is typical in Kent, where the overdrift arrangement prevails, but may have been a common feature of mills in the Medway area.

3. Brief description of the mill

The building envelope

The structure of the mill comprises a tapering six-sided timber-framed tower with four levels standing on a brick base of two storeys. The walls of the base have a less pronounced taper than those of the wooden tower above. The smock tower is framed using a combination of oak, elm and softwood.

The top of the tower supports a circular wooden curb ring, above which rests a four-sided cap roof with a central ridge. The rafters of the cap are gently curved to create the recognisable form of 'waggon-shaped' or hooded roof favoured by Kent millwrights. The front wall of the cap is curved in plan and slopes backwards slightly; the rear wall is flat and vertical.

Both the cap and the smock tower are clad with a double layer of feather-edged weatherboarding, painted white to exclude the weather. The red brick base is lime washed internally.

A wide timber-framed reefing stage surrounds the mill at the junction between the brick base and the smock tower, at second floor level. It is accessed by opposing doors on the east and west elevations. The brick base has a single door in use at ground floor level – its opposite number being permanently closed - and a loading door at first floor level.

The brick base has a single window on the north west side. This is located above the adjoining single-storey outbuilding which formerly functioned as the engine house to the windmill, and is now used as office space.

The smock tower extends upwards from second floor level. Here there are opposing doors on the east and west sides and a windows on the north side. The third, or millstone floor, has windows on the north and south sides. The fourth or bin floor level has a window on the south side, illuminating the stairwell. At fifth or dust floor level the reduced width of the wall panels permits only a small glazed aperture on the north side.

The working parts

The machinery of the mill comprises two pairs of 'patent' sweeps, with adjustable shutters, driving three pairs of millstones in total: two on the third floor and a third pair, added late in the mill's working life, on the second or meal floor. This pair could alternatively be driven from below by the auxiliary engine located in the adjoining shed. The engine drive gearing remains in position, suspended below the second floor.

Secondary machinery rarely survives in a windmill but is present at Meopham Mill, adding to its technological value. This comprises a small flour dressing machine suspended above the second floor and an oat crusher or roller mill located immediately below it.

The inclined windshaft in the cap, which supports the sweeps, is of cast iron and is a replacement for the original timber shaft. The brake wheel, mounted on the windshaft, has a wooden rim carried by a central spider with six cast iron spokes.

At the rear of the cap, a cantilevered framework supports an eight-bladed fantail and associated reduction gearing. Via a ring of wooden cogs fitted to the curb and a large wooden worm gear, the fantail acts automatically to steer the cap around to face the wind whenever it changes direction.

History of the mill

The following notes on the history of the windmill have been compiled from James Carley's 1993 booklet "The Killicks and the Nortons – Millers in Meopham" and from R J Brown's 1976 book "Windmills of England".

Part 1 – The Killicks

The land on which the mill stands once belonged to the Nordish family, whose name first appears in parish registers in 1576. Five and a half acres at Pitfield Green were owned by Henry Nordish in the late 18th century. On his death in December 1800, the land, which included a cottage, was left to John Scudder. Part of this land eventually became the site of the mill.

On 24th June 1819, Scudder sold three quarters of an acre of land to James and Thomas Killick for £125. James was born in 1792, the eldest son of James and Sukey Killick, who were living in Strood. James moved to Meopham in 1819 with his wife Harriett to establish Meopham Windmill.

The land purchase description described the site as: *"All that piece or parcel of land or ground containing by estimate three quarters of an acre, used as a garden or orchard... at Pitfield Green in the parish of Meopham in the county of Kent... somewhat of a triangular shape, and abuts to lands belonging to James Buggs to the north, to the green called Meopham Green on the east, to the road leading from Meopham Church to Trosley on the south and to land of George Smith Esquire to the west."*

An old tale describes the mill as having been built by three brothers who walked over from Strood every day. This may refer to the three eldest of James Killick's eleven children, James Jr, Thomas and John. The hexagonal shape of Meopham mill matches that of the family windmill at Broom Hill, Strood, which continued to be operated by Thomas and John following the death of their father in 1823 and their mother in 1836, while James Jr remained at Meopham.



An early photo of the mill, taken during the Killick family's ownership. The fantail has not yet been fitted, and one pair of sweeps is canvas-covered. (Rob Cumming Collection)

On the death of Sukey Killick, the Meopham operation was valued at £963.15s.0d.. James had to pay ten elevenths of this to his siblings. To do this, he arranged a mortgage of £500 from J. Nightingale, which was repaid in 1874. The valuation would have included the land with the "Wind Corn Mill" as well as various outbuildings, a Mill House, vehicles, probably a horse, and the equipment and goodwill of a business that had by then been established for 15 years.

By 1887, the partners in the business were James, Thomas and Richard Killick. James died on 9th December 1889, aged 97 - a long

life which appears to have been devoted to windmilling. His son, also James, inherited the property but died very shortly afterwards, in April 1891. His wife Matilda immediately sold up, ending the family connection with Meopham Mill.

Part 2 – The Nortons

John Norton purchased the mill and land from Mrs Killick on 14th August 1891 for £830. John's brother, Tanner, worked the nearby windmill at West Kingsdown and Tanner's son, William Morgan Norton, was soon brought into the Meopham business. He married Clara Payne and was permitted by John to build the present Orchard House, which stands close to the road. Other parts of the Norton enterprise included a sweet shop and tea rooms which are shown in old postcards.



Meopham Mill, c1905, at work with one pair of common sweeps and one pair of shuttered sweeps. A fantail has now been fitted and the rear wall of the cap has been painted white. (MWT Collection)

In August 1902 the Nortons purchased row of four shops in Nevill Parade, operating two and leasing out the other pair. "J & W Norton" sold a wide range of products including flour, groats, bread, corn, hay, straw, manure, seeds, dog biscuits, rice for feeding poultry, medicines and feedstuffs for cows and other animals, and eggs for rearing pheasants and other game birds.

John Norton died on 2nd April 1908, leaving his entire estate to William. Trading continued, but the business suffered during the first World War. William's son Leslie Norton, born in 1895, joined the business after leaving school, and was the last person to work the windmill.

Around 1914, flour production at the mill ended, but the milling of animal feed by wind power continued. In around 1923, a 15hp paraffin-petrol engine was purchased from Richardson's Mill, Boughton-under-Blean, which was being demolished. A set of Derbyshire Peak millstones were also purchased, and set up on the second floor, as there was no extra room at third floor level. The new millstones were set up so that the engine could power all the machinery in the mill, without having to turn the sweeps.



Meopham Mill, c1918, showing the Norton's shop and a large advert for the tea gardens. The mill now has four shuttered sails. (MWT Collection)

The engine was installed in the shed beside the mill, which is now used as the Parish Office. It had a heavy fly wheel which had to be spun to start it. The engine worked first on paraffin and was later switched to petrol after it had warmed up. It is on record that Meopham Mill generated its own electricity from about 1923 when the engine was installed – but how this was achieved is unclear.

The two remaining sweeps were still turning in August 1930, but by September 1934 they had lost their shutters and were clearly out of action.



Meopham Mill in 1939, a few years after it ceased working by wind power. Only two sweeps are left and the fantail is a skeleton following storm damage in 1935. (The Mills Archive Harry Meyer Collection)

Early in 1935, the mill was hit by strong winds and was only saved by the combined efforts of Mr Norton and his sons, Leslie and David. On 16th March the East Kent Gazette reported: *"During Sunday night three men risked their lives on top of a windmill in a gale, fighting to save the mill from fire and collapse. About eight o'clock in the evening it was found that the fan, the small wheel which keeps the big sails into the wind, had broken away from its gear... and was whirling at terrific speed. Sparks were flying from the friction, and a warning was telephoned to the nearest fire brigade to stand by. Mr Norton and his two sons managed to climb out onto the timbers supporting the fan, but in the gale were helpless. Piece by piece the fan broke up, but other serious damage to the mill was averted."*

Leslie Norton took charge of the business before the Second World War. As a result of local interest, the mill became a listed building in 1952. In 1958, Mr Norton approached Kent County Council for assistance with the mill's preservation. After an inspection by the County Architect, KCC acquired the freehold of the mill and engine house on 13th November 1959, leasing it back to Mr Norton for 999 years.

Restoration work was undertaken by E. Hole & Son, millwrights of Burgess Hill in Sussex, at a cost of £4,375. The work began in May 1962 and was completed in October when four new sweeps were installed.

After the death of Mr Norton in 1967, the lease of the mill was put up for sale. The Meopham Windmill Trust was established and enough money was raised locally to purchase the lease of the mill and engine house. The Trust was also able to purchase the land on which the mill stands. This was laid out as a garden and the windmill was opened to the public for the first time in July 1971.

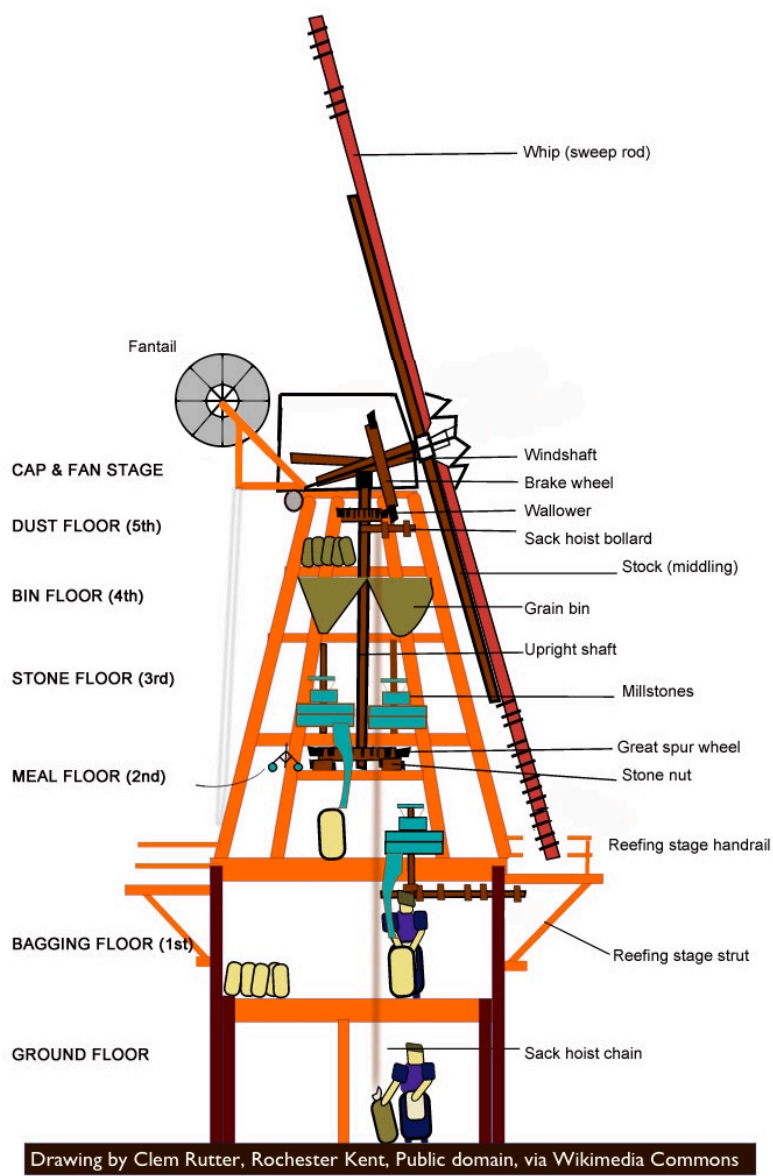
How the mill works

The structure

Meopham Windmill is a **smock mill**, one of only 50 complete examples in the UK.

The windmill's tower is a tall, six-sided structure with four floors above the ground. The lower two floors are built of brick and the upper floors are timber-framed. The tower walls slope inwards towards the top of the mill so the area of each floor is smaller than the one below it.

A wide **reefing stage** platform encircles the mill tower at second floor level, which is the junction between the brick base and the timber-framed 'smock' from which the mill takes its name.



Power from the wind turns the **sails** of the windmill, which are often called **sweeps** in areas south of the River Thames. The sweeps are mounted at the front of the mill's **cap** roof.

Because the wind does not always blow from one direction, the cap must be able to turn all the way around in both directions so that the sweeps always face the oncoming wind. A small set of sweeps at the rear of the cap, the **fantail**, acts like a weathervane to turn the cap around automatically. The fantail works 24 hours a day to ensure that the sweeps always face into the wind.

The milling machinery

Inside the mill, power from the sweeps is conveyed from the top of the mill to the bottom by a system of gear wheels and shafts.

The **brake wheel**, positioned inside the cap, drives the **wallower** at the top of the central **upright shaft**. A large brake shoe encircles the brake wheel, and this can be applied gently to bring the sweeps to a halt.



The brake wheel, located inside the cap at the top of the windmill.

Lower down, below the third floor, the **great spur wheel** transfers power to three pairs of **millstones**. Two pairs of stones are located on the third floor and an extra pair is positioned on the second floor. This pair, added during the 1920s, could be driven either by wind power or by the petrol engine which was located in what is now the Parish Office.

Other machinery in the mill includes a wind-powered **sack hoist** which lifted sacks of grain to the top of the mill ready for milling. A hand-powered **winnowing machine**, for cleaning the grain before it is milled, can be seen on the first floor.

The milled flour, or 'whole meal', could be passed through the **flour dresser** to sieve off the bran if white flour was required. This machine, powered by the sweeps, can be seen above head height on the second floor.

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